ABSTRACT

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In vitro cultures of medicinal plants - XII.

Abstract

The effect of ultrasound (US) as abiotic elicitor on the flavonolignans production in *Silybum marianum* L suspension culture was investigated.

The culture was cultivated in Murashige and Skoog nutritive medium with (α - NAO) (g/l) as growth regulator at 25^{o}C and luminous period 16 h of light and 8 h of darkness. The elicitor - ultrasound by frequency 35kHz and intensity 0,1Wcm^{-3} for a period 1, 2, 3, 4 and 5 min has been used. The samples were taken in 0, 6, 12, 24, 48, 72 and 168 h after US exposition. The control samples were taken in 0 and 48 h. The quantity of flavonolignans was determined by High performance liquid chromatography (HPLC).

The highest increase of taxifolin content was apparent after 5 min of US elicitation and 48 h sampling (0,04%) – 400%, other increase was apparent after 5 min of elicitation and 72 h sampling.

The higher content of silychristin was found after 1 min of US elicitation and 72 h sampling, the same level was observed after 2 min of elicitation and 24 h sampling. The higher level of silydianin was detected after 2 min of US elicitation and 6 h sampling and the silybin B after 2 min of elicitation and 12 h sampling after exposition.

Taxifolin and flavonolignans release to the nutrient medium was detected. The highest taxifolin release was apparent after 4 min of US elicitation and 168 h sampling (0.12 %). Silychristin highest release was apparent after 5 min of elicitation and 0 h sampling (0.18 %). Silybin B was released after 5 min of elicitation and 12 h and 48 h sampling. Silybin A and silydianin was released by controle culture after 48 h sampling.

The ultrasound elicitation of *Silybum marianum* L. suspension culture didn´t have any effect on the increase of flavonolignans production as silybin A, isosilybin A, isosilybin B.